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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,826	06/07/2001	Y. Tom Tang	PF-0637 USN	2342

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INCYTE CORPORATION
3160 PORTER DRIVE
PALO ALTO, CA 94304

EXAMINER	
TURNER, SHARON L	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,826	TANG ET AL.	
	Examiner	Art Unit	
	Sharon L. Turner	1647	

-- The MAILING DATE of this communication appears on th cov r sh et with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-40* is/are pending in the application.

4a) Of the above claim(s) *29,30 and 33-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-28,31 and 32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *21-40* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10-14-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows: The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

In particular, priority is not found within the 60/198,234 application filed December 11, 1998 for the sequences of SEQ ID NO:17 and 44 to which the claims are drawn. Thus, the effective priority date awarded instant claims is that of the 60/119,365 application, filed February 9, 1999.

Election/Restriction

2. Applicant's election with traverse of Group XVII corresponding to new claims 21-28, 31 and 32 in the Paper of 10-14-03. The traversal is on the ground(s) that claims 38-40 are drawn to antibodies and compositions, depend from the elected invention and are interrelated to the same special technical feature and thus should be examined together. In addition Applicants argue that all claims are so related and represent minimal burden for examination, see arguments pp. 8-12. Applicants request rejoinder based upon allowable subject matter. These arguments are not found persuasive. In

particular, the special technical feature polynucleotide and peptide lack unity as noted in the art of record. Moreover, the inventions define unique special technical features and distinct methods of using the distinct technical features as disclosed and claimed. In accordance with PCT Rules the invention thus lacks unity and is separable.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 29-30 and 33-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the Paper of 10-14-03.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 21-28 and 31-32 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial, credible asserted utility or a well established utility.

The specification discloses at pp. 1, lines 1-5 that, "This invention relates to nucleic acid and amino acid sequences of neuron-associated proteins and to the use of these sequences in the diagnosis, treatment and prevention of cell proliferative disorders including cancer, neuronal and neurological disorders, and autoimmune/inflammation disorders." In particular, the specification references at least 27 unique peptide sequences termed NEUAP proteins for neuron associated proteins,

see in particular pp. 7, lines 25-34. As noted in the specification at pp. 9, lines 30-31, "Table 2 shows features of each polypeptide sequence, including potential motifs, homologous sequences, and methods, algorithms. and searchable databases used for analysis of NEUAP." In Table 2 under the column "Identification", with respect to SEQ ID NO:17, the Table states "bipolar disorder- associated protein (g2271473)." Yet the specification provides no further detailed information as to the data referred to therein and its relationship to bipolar disorder. The specification contemplates multiple laundry lists of uses in relation to the disease noted at pp. 33-34 and 43-44 but fails to exemplify any specific and substantial use of the claimed nucleic acids and/or protein encoded thereby. In particular, the significance of the molecule, its functions, effects and specific and substantial utility are lacking. While the specification contemplates the various reagents as useful in various molecular techniques of experimentation, such utilities are not specific or substantial because the uses merely rely on the inherent properties of any nucleic acid to hybridize (bind) and/or encode and any peptide to bind and/or stimulate an immune response. Thus, the disclosed nucleic acids and peptides merely constitute research reagents for further experimentation to discover their "real-world" use. The contemplated uses also do not constitute well-established utilities because their functional significance has yet to be established. The peptides are merely disclosed as being neuron-associated peptides. But there is no known sequence structure or function disclosed or recognized as being related to any of a multitude of neurological or neuron associated functions. In addition, the specification does not teach any conserved nucleic or amino acid positions critical to neuron activity, function

or phenotype. As recognized by Skolnick et al., Trends in Biotech., 18(1):34-39, 2000, the skilled artisan is well aware that there is an unpredictable nature in the ability of encoding nucleic acids to predict structural and functional activities for any particular protein or protein family, and that even when highly homologous and conserved residues are known only experimental research can confirm the artisan's best guess, see in particular Skolnick, abstract and Box 2. Thus, the assignment of instant SEQ ID NO: 17 as a neuron associated protein and the brief mention of it's identification in Table 2 as a bipolar disorder associated protein fails to define either a specific or substantial asserted utility or well-established utility for the claimed sequences.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 21-28 and 31-32 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial, credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

In addition to the aforementioned, the following defects are noted with respect to enablement of instant invention as claimed, even if utility should be found.

8. Claims 21-28 and 31-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specifications disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors relevant to this discussion include the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims.

Applicants claims are directed to peptides with greater than single amino acid substitutions, naturally occurring variants, biologically active peptide fragments and immunogenic fragments.

The specification does not enable the broad scope of the claims which encompasses a multitude of analogs or equivalents because the specification does not teach which residues can or should be modified such that requisite functionality is maintained, note utility rejection above. The specification provides essentially no guidance as to which of the essentially infinite possible choices is likely to be successful in any particular use and the skilled artisan would not expect functional conservation amongst homologous sequences. Thus, applicants have not provided sufficient guidance to enable one skilled in the art to make and use the claimed derivatives in a manner reasonably correlated with the scope of the claims.

As to "naturally occurring", "90%" and "biologically active" variants, the skilled artisan recognizes that nucleic and amino acid alterations may lead to differences in

function. For example, the skilled artisan recognizes as noted in Skolnick et al., above and as further exemplified by Choh, PNAS 77(6):3211-14, 1990, that one or more amino acid deletions, insertions or substitutions including truncations results in unpredictable effects in the resulting biological molecule, its' biological function, the ability to bind and/or exhibit similar immunoreactivity. The specification teaches no structural or functional activities of a NEUAP protein or nucleic acid, fails to teach any residues which may be exchanged while retaining requsite activity or function and fail to teach the significance or function of any particular variants. As to the nucleic acids, the skilled artisan recognizes that encoding nucleic acids are dependent upon the structural nucleotides and their relationship to the genetic code and translational signals. The specification fails to note those nucleic acid molecules that are naturally occurring and capable of encoding the requisite peptides. As noted above the peptide structures and their pertinent sequences are insufficiently disclosed and/or enabled to the full scope of the claim.

The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without such guidance, the changes which can be made and still maintain activity/utility is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See Ex parte Forman, 230 USPQ 546 (Bd. Pat. App. & Int. 1986). Thus, the skilled artisan cannot readily make and use the claimed sequences without further undue experimentation.

9. Claims 21-28 and 31-32 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The specification describes NEUAP polypeptide sequences including that consisting of SEQ ID NO:17, but for which no functional significance or activity is described. The specification also notes the coding nucleic acids of SEQ ID NO:44 but fails to note any other functional significance of the nucleic acid sequence. The claims encompass polypeptides comprising fragments and homologues, i.e., polypeptides that vary substantially in length and amino acid composition. In particular, the language of the claims is directed to "naturally occurring", "90%" and "biologically active" variants.

The instant disclosure of a single polypeptide, that of SEQ ID NO:17 with no instantly disclosed specific activities, does not adequately support the scope of the claimed genus, which encompasses a substantial variety of subgenera. A genus claim may be supported by a representative number of species as set forth in Regents of the University of California v Eli Lilly & Co, 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), which states:

> "To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention". Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1980) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that

[the inventor] invented what is claimed.") Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d 1565, 1572, 41 USPQ2d at 1966.

An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. Fiers v. Revel, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id at 1170, 25 USPQ2d at 1606."

A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. The instant specification discloses, however, a single isolated polypeptide sequence, that of SEQ ID NO: 17 and no other amino acid sequences that are proposed to possess the same activity, that are noted as being naturally occurring or that are disclosed as exhibiting any conserved biological acitivity or function.

Given the unpredictability of homology comparisons as noted above, see in particular Skolnick et al., and Choh et al., and the fact that the specification fails to provide objective evidence that any other additional sequences are indeed species of the claimed genus it cannot be established that a representative number of species have been disclosed to support the genus claim. No activity is set forth for the additional sequences. The specification further sets forth a proposed consensus

sequence for the genus (90%) identity, yet there is no correlation or nexus provided between possession of this structural feature and any encompassed function of SEQ ID NO:17 such that it is clearly conveyed that possession of any polypeptide having this structural region, any part thereof or percent similarity in common would possess any defined activity or function. Thus, the claim recitations as to naturally occurring, 90% and biologically active variants and/or fragments lacks adequate written description support.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 21-28 and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication No.: US 2003/0027998 filed March 2, 2001 and published February 6, 2003.

Publication 0027998 teaches novel genes encoding proteins having prognostic, diagnostic, preventative, therapeutic and other uses as noted, see in particular Abstract and pp. 1-205 specification. The sequence of SEQ ID NO:56 of the 0027998 publication bears 100% similarity with instant SEQ ID NO:17. Instant SEQ ID NO:44 bears 90.6% similarity with SEQ ID NO:55 of the 0027998 publication and bears 100% similarity within the coding sequence region, i.e., differing only in the non-coding

upstream and downstream regions. In particular, residues 101-1061 of instant SEQ ID NO:44 are 100% identical to residues 6-966 of 0027998 SEQ ID NO:55. The 0027998 reference further teaches the nucleic acids within vectors, host cells and methods of producing the polypeptide with encoding sequences, see in particular pp. 13-14184-188 and claims. Pharmaceutical compositions with excipient are noted at pp. 188-190. Thus, the reference teachings anticipate the claimed invention.

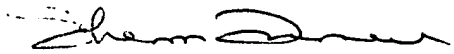
Status of Claims

12. No claims are allowed.

13. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 308-4242.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (571) 272-0894. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 7:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached at (571) 272-0887.



Sharon L. Turner, Ph.D.
February 4, 2004